ENERGY SERVICES Bulletin
The energy and planning resource for WAPA utilities
April 2017
WESTERN AREA POWER ADMINISTRATION

# Nebraska City Utilities celebrates Arbor Day year-round

Trees are so beautiful and useful—they provide food, fuel and lumber, prevent soil erosion, cool the planet and inspire poets—so it is fitting that they have their own national holiday: Arbor Day. It is also fitting that the city that held the first Arbor Day in 1872 makes tree planting a part of its ongoing resource planning efforts.

Recognizing the important role trees play in the environment and in its history, Nebraska City Utilities (NCU) offers its customers not one, but two tree planting programs. Customers can choose the municipal utility's own "Energy Saving Tree" program. Also offered in partnership with the National Arbor Day Foundation, (NADF) is the foundation's "Three Free Trees" program, which NCU helps to facilitate for its customers. Both programs give NCU the chance to educate customers about planting "the right tree in the right place," and together have saved more than 67,000 kilowatt-hours (kWh).

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## Tale of two programs

The "Energy Saving Tree" program reimburses the customer for half the cost of a pre-approved tree up to $100. "An NCU arborist—someone from our tree line clearance crew —helps the homeowner pick the spot to plant it based on best tree-planting practices," explained NCU General Manager Leroy Frana.

Wire-friendly varieties that are eligible for the rebate include the Armur maple, hedge maple, serviceberry, eastern redbud, flowering crabapple, Japanese tree lilac and thornless cockspur hawthorn.

Participants receive the reimbursement as a credit on their bill and then enjoy lower utility bills during the summer cooling season. The strategically planted tree also increases the value of the property.

National Arbor Day Foundation's "Three Free Trees" provides up to three trees of 2 to 4 feet in height at no cost to the customer. The truly dedicated environmentalist can get 10 free seedling trees by joining the foundation. The trees come to the customer by mail and the NADF website helps them with choosing the site for planting. "We budget for 100 trees annually," said Frana, "It's a popular program because everybody loves getting something for free."

## Tree-lined history

Soon after arriving in Nebraska City in 1854, journalist J. Sterling Morton began planting orchards, experimenting with various crops and spreading the gospel of trees and conservation to his fellow pioneers. The vast expanse of treeless prairie needed windbreaks to prevent soil erosion, and settlers need building material and shade. Morton not only encouraged individuals to plant trees; he urged civic groups to join in. His work led to an appointment as Secretary of the Nebraska Territory.

Morton organized the first "tree-planting holiday" in 1872 and it is estimated that more than one million trees were planted in Nebraska by individuals and counties in celebration. Nebraska declared Arbor Day a state holiday in 1885 and chose April 22, Morton's birthday, as its permanent date.

**The home of J. Sterling Morton, the founder of Arbor Day, is now an historic landmark and park in Nebraska City. (Photo by Arbor Day Farm)**

Today, Arbor Day is celebrated around the world on different dates (based on the best time to plant trees in the region), and Morton's Nebraska City farm is now a 260-acre National Historic Landmark known as the Arbor Day Farm.

Like most states, Nebraska now celebrates Arbor Day on the third Friday of April. Frana recalled having their newly purchased tree riding a float with his children in the city's 2011 Arbor Day parade, and planting the State Street Maple at their home later in the day. "That tree is about 16 or 18 feet tall now," he said.

## Plant your future

Planting trees is a good investment for a utility even if it is not in the middle of the Great Plains. Nationwide, the Energy Saving Trees program has saved more than 300 million kWh and 4 million therms, sequestered or avoided almost 1 billion pounds of carbon dioxide emissions and provided $106 million in combined energy and community benefits. To put it in personal terms, "Shading the home is one of the best ways to cut your electric air conditioning load," Frana pointed out.

Utilities that partner with the Arbor Day Foundation on the Energy Saving Trees program will get help building their program with educational resources, celebration materials and more. Partners can use a calculator on the NADF website to help homeowners determine the right tree for the right place and show much money planting it will save them. Participating in the program can generate positive media attention for your utility, raise public awareness about your programs and beautify your community.

Join other WAPA customers like Sacramento Municipal Utility District, Colorado Springs Utilities You are leaving WAPA.gov. and, of course, Nebraska City Utilities in planting for the future. Show your customers that you believe as J. Sterling Morton did, that each generation takes the earth as a trustee. Happy Arbor Day from WAPA and Nebraska City Utilities! ■

# Butler County REC tests water for solar energy

Iowa leads the nation in installed wind capacity—only Texas ranks higher—but lags at 34th for installed solar, leaving utilities like Butler County Rural Electric Cooperative (REC) facing a learning curve. To fill in some of those knowledge gaps, the cooperative launched a demonstration project in late January that will allow it to collect data about solar energy and pass it on to its members.

It was growing consumer interest that led to the project, according to Craig Codner, Butler County REC chief executive officer. "As our members continue in the direction of having more interest in renewable energy, we want to share accurate information with them," he explained. "We want to help members make informed decisions."

## Putting it together

The exploration began with the selection of a 230.6 (kW) direct-current (DC)/147-kilowatt (kW) alternating-current solar array manufactured by Ten K Solar of Minnesota. Codner said the co-op board chose the Duo High-Density system because it was designed for maximum energy generation and has an excellent warranty.

The system's wave format features both north- and south-facing modules, increasing the opportunity for demand reduction. The north-facing modules will generate more electricity earlier and later in the day, while the south-facing units will produce higher amounts in the middle of the day, increasing the energy per square foot.

A crew from Western Iowa Power Cooperative installed the system at Butler County REC's warehouse in Horton, north of Waverly, Iowa. The system is interconnected to Butler County REC's distribution system with bi-directional metering, rather than net metering. The electricity offsets energy and demand at a rate contracted through Corn Belt Power, Butler County REC's generation and transmission provider.

The co-op expects the arrays to generate about 268,000 kilowatt-hours per year, or enough to serve approximately 15 to 20 members annually. Members and co-op employees can monitor the solar project's real-time output through a web-based kiosk. Codner said that there are plans to add an educational video to the website, as well. "One of the main reasons for the project is to help members understand solar better, how things like cloud cover or particulates in air affect capacity factor," he explained.

## Paying for experience

The project's total cost of approximately two dollars per DC watt is partially funded by a $20,000 Rural Energy for America Program (REAP) grant, New Clean Renewable Energy Bond (CREB) financing and a federal tax credit.

This was the first time Butler County REC received REAP funding, offered through the U.S. Department of Agriculture. Applying for the REAP grant and for New CREB financing from the National Rural Co-op Finance Corporation was a labor-intensive experience, Codner acknowledged. "I would advise co-ops to look carefully at all their financing options when they undertake a renewable energy project," he said. "Self-financing avoids a lot of paperwork."

## Continuing renewables support

The new solar array may be Butler County REC's first foray into utility-owned renewables, but the co-op has offered members the opportunity to support member-owned clean energy

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**Butler County REC chose a Duo High-Density system that features both north- and south-facing panels for maximum generation. (Photo by Butler County Rural Electric Cooperative)**

# Equipment Loan Program adds new tools

Thanks to your suggestions, WAPA customers can now borrow two new diagnostic tools from our Equipment Loan Program. The electromagnetic field (EMF) monitor and the Sense Home Energy monitor are easy-to-use meters that provide useful information for both you and your customers.

**Electromagnetic field monitor**


**Sense Home Energy monitor**

The US National Institute for Occupational Safety and Health does not consider low-frequency EMFs to be a proven health hazard, but your customers may have concerns about nearby power lines or appliances in their home. You can use the EMF monitor to answer their questions. This device allows you to measure when, for how long and how frequently an appliance or system is emitting EMFs.

No special training is needed to use the point-and-shoot tool and it does not store readings to be downloaded.

The Sense Home Energy monitor measures the energy consumption of individual appliances and light fixtures. It connects wirelessly to the user's cell phone to provide data that can help consumers understand their home energy use and take more effective actions to reduce it. The information is stored on the connected cell phone.

As a WAPA customer, you can borrow new monitors and a whole library of other useful tools free of charge. Utilities must pay the cost of return shipping. To schedule an equipment loan, contact Chris Lyles at 720-962-7249. And don't forget to share your story with *Energy Services Bulletin* about how the borrowed tool helped your utility. ■

## Butler County *from Page 3*

projects since 2006. The Energy Wise Renewables program initially supported only wind projects but has been expanded to include solar and other types of generation that enhance the traditional electric power supply. Codner estimates that there are 350 to 500 kW of solar interconnected to the co-op's system.

Butler County REC is absorbing the solar project's cost rather than using Energy Wise dollars to offset it, Codner added. "We decided that those dollars should go to member projects as originally intended," he said.

### Looking ahead

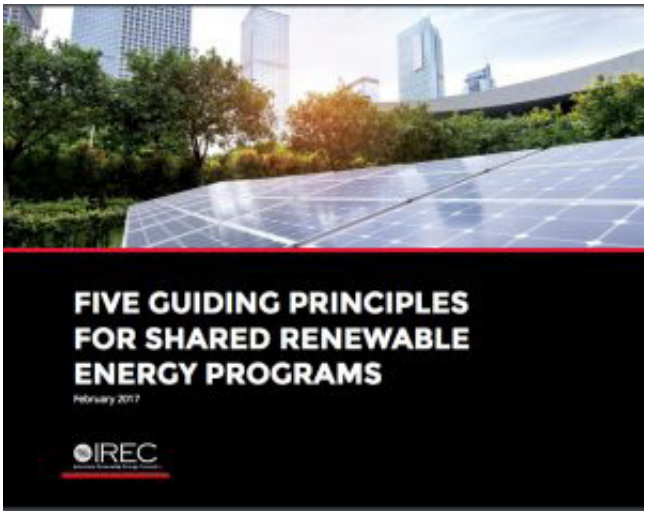
Now that the solar system is operational, Butler County REC is planning an open house to let members get a closer look at the project and ask questions. Codner is looking forward to testing manufacturer claims about the equipment and learning more about interconnection, operation and maintenance. "Safety—for members and our employees—is our No. 1 concern," he stated.

If all goes well, the co-op board of directors is considering several possible locations for installing a second array in 2017. This second project may be a community solar initiative that would offer subscriptions for sale to members at a set rate for a certain period of time.

So far, the projects on Butler County REC's system have been smaller ones that are most cost effective if the generation is consumed on site. But good customer service is about preparation and innovation. Butler County REC is taking steps today to make sure it is ready for whatever is coming tomorrow. ■

# IREC releases new shared renewables program guide

The national market for shared renewable energy programs has grown significantly since the Interstate Renewable Energy Council (IREC) published its Model Rules for Shared Renewable Energy Programs in 2009 and the update of those rules in 2013. Today, interest in shared renewables is growing, along with many more mandatory statewide and voluntary utility programs. To stay current with those industry changes, IREC has released the updated *Five Guiding Principles for Shared Renewable Energy*.




**Artwork by Interstate Renewable Energy Council**

While many of the original principles remain, the modifications are intended to reflect evolutions in the market, as well as the insights IREC has gained from working with states creating the earliest shared programs. These guiding principles highlight the benefits of shared renewable energy programs to participants, the renewable energy industry, utilities and all energy consumers.

The new *Five Guiding Principles* are also intended to broadly define what constitutes a shared renewable energy program with a focus on the consumer experience. IREC defines "shared renewable energy" or "shared renewables" programs as programs that enable multiple customers to share the economic benefits of one renewable energy system via their individual utility bills (typically through bill credits). Other "community" renewables programs, such as green tariff shared renewables, group purchasing or aggregate net metering programs are not included under the definition.

The five principles in summary are:

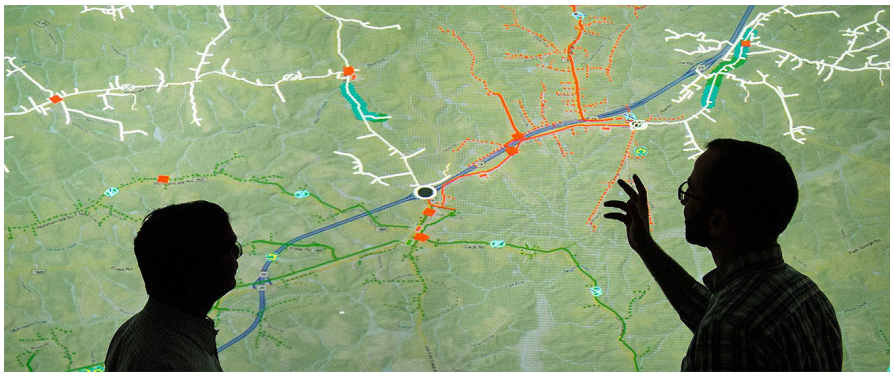
1. Shared renewable energy programs should expand renewable energy access to all energy consumers, including those who cannot install renewable energy on their own properties.
2. Shared renewable energy programs should provide a fair value proposition to participants and tangible economic benefits on their utility bills.
3. Shared renewable energy programs should be consumer-centric and accommodate diverse consumer preferences.
4. Shared renewable energy programs should encourage fair market competition.
5. Shared renewable energy programs should be additive to and supportive of existing renewable energy programs, and not undermine them.

Additional IREC resources on shared renewable energy programs include:

- IREC's *Model Rules for Shared Renewable Energy Programs* – Model program rules intended to assist stakeholders in developing shared renewables programs that expand renewable energy access to more consumers.
- *Shared Renewable Energy for Low- to Moderate-Income Consumers: Policy Guidelines and Model Provisions* – Information and tools for shared renewables programs specifically designed to provide tangible benefits to low- and moderate-income individuals and households.
- *State Shared Renewable Energy Program Catalog* – Compilation of state shared renewables program rules and other details.
- *Consumer Protection Trio* – Includes the Clean Energy Consumer Bill of Rights, Be Solar Smart Consumer Checklist, and Resources list, together spotlighting safeguards and pointers for buyers, government agencies, the industry, retailers and others. ■

# DGIC announces new website, case studies, webinar schedule

Utilities faced with questions posed by the growth of residential photovoltaic (PV) systems and the emergence of battery storage can find answers with the Distributed Generation Interconnection Collaborative (DGIC). This forum enables electric utilities, solar industry participants and other stakeholders to exchange best practices for distributed PV interconnection.



**Artwork by Distributed Generation Interconnection Collaborative**

Now in its fourth year, the DGIC has updated its website to make it easier for visitors to find exactly what they are looking for. Content is organized by four topic areas:

- Data transparency
- Business models and regulation
- Application processing
- Analytical methods for interconnection
- Technology solutions

Webinars, reports and blog articles are just a click away, and DGIC can easily add the latest research on distributed generation coming from the National Renewable Energy Laboratory. You will want to bookmark the new website and visit regularly to check for updates.

## Suggest case studies

Do you know of an organization doing high-quality, innovative work on the interconnection of distributed generation? You can nominate that organization to be profiled in a series of case studies DGIC is planning to produce. The case studies will extend DGIC's peer exchange beyond the webinar format to highlight leading practices in the field.

Help DGIC identify industry leaders by submitting your nominations by April 30. The nomination form will remain open after that date but only nominations received by the deadline will be considered for completion in 2017.

## Attend webinars

The DGIC webinar schedule for 2017 has been released and it showcases a diverse array of topics and expert speakers from utilities, research organizations and other industry participants.

The peer exchange events begin April 5 with *Energy Storage Permitting, Interconnection, and Analysis*. This webinar will focus on one of the most talked about and fastest growing distributed energy resources in the country. This relatively new technology has the ability to act as both a load and a generator, posing unique challenges when interconnecting to the grid. Attendees will learn about permitting, interconnection requirements, and the specific analytical needs of energy storage systems.

*Distributed Solar for Smaller Utilities*, on May 18, will highlight the experiences of smaller utilities that are shifting their business processes, staffing, planning and operations to integrate distributed solar into their systems.

The July 19 webinar, *Plug-and-Play Solar*, will discuss new technologies and techniques that could reduce equipment and labor costs, but may require changes to interconnection standards and procedures.

The webinar series concludes in September with *Aggregation of Distributed Energy Resources* which will feature lessons learned from utilities exploring the possibility of putting a variety of distributed resources under unified operational control. The date and registration information for this webinar will be announced later this year.

All scheduled webinars will be presented from 12 to 1 P.M. Mountain Time. There is no cost to participate, but registration is required. ■

# Change is in air at Utility Energy Forum

## May 3-5, 2017
## Santa Rosa, California

If the rapid pace of change in the utility industry has become almost a clichéd topic, it is because trying to assess and manage it is a constant challenge across large, small, investor-owned and public power providers alike. So don't expect attendees at the 37th annual Utility Energy Forum to run out of things to say about this year's theme, "Change is the Only Constant – Customers, Policy and Technology."

### Packed agenda

Over three days, utility managers and marketers, customer service professionals, program developers, facility managers and industry allies will tackle that theme from many perspectives. The agenda covers the broad categories of policy, strategic planning, technology, customer programs and workforce development.

The opening keynote by Seth Kiner, managing director at Charlotte Street Advisors, delves into the many shifts underway in the industry and what they mean for utilities, policy makers and electricity customers. Kiner will also explore how energy providers are evolving to meet the needs of consumers, regulators and stakeholders.

Sessions will explore topics such as electric vehicles, building retro-commissioning, window coverings and partnering with specific market segments. As always, WAPA customers play a prominent role in hosting panels and presenting. Roseville Electric will discuss its revamped residential new construction program, formerly known as Best Home. Burbank Water and Power will explain how teaming up with a gas utility encouraged conservation of water, electricity and gas, all at the same time. Sacramento Municipal Utility District will talk about the Coalition for


Home Electronics Energy Reduction, a collaborative effort to cut U.S. home entertainment energy consumption by 10 terawatt-hours annually by 2020.

Speaking of utilities, you won't want to miss the Pre-Forum Workshop, for power providers and government representatives only. Registrants took a survey and voted on the questions they most wanted to address in this year's roundtable discussion. The top questions are:

- What is the value of energy storage for customers, utilities and the grid?
- What beyond-the-meter services is your utility considering?
- What hurdles are your utility encountering with integrating and managing more energy efficiency in your resource mix?

### Make new friends, partners

In addition to the sessions, the forum offers many opportunities for attendees to compare notes, brainstorm, ask each other questions and come up with new answers together.

The Utility Stand-up Challenge is a fast-moving poster session during which attendees can visit up to six storyboards detailing utility-sponsored energy programs or research. Storyboard presenters have up to five minutes (seven with Q&A) to share their program's goals, successes and lessons learned. A bell rings, attendees choose another storyboard and the clock starts again.

Networking breaks, receptions and meals provide more chances to mingle and chat. The ever-popular "Any Port in a Storm" wine tasting event will be back on Thursday night.

### Different venue, same high quality

In keeping with the theme of change this year, the UEF is moving to a new home at the Hilton Sonoma in Santa Rosa, California. The hotel is located in the heart of the California wine country, near historic locations.

The nearest airport is the Charles M. Schulz Sonoma County Airport, just three miles from the hotel. The largest airports are San Francisco International Airport and the Metropolitan Oakland International Airport, both 65 miles away. The Sonoma County Airport Express provides scheduled shuttle service between San Francisco or Oakland airports to the Sonoma County Airport for $34 each way. You can use a taxi, Uber or Lyft to get to the hotel from the Sonoma County Airport.

### Register today!

One of the great things about the Utility Energy Forum that hasn't changed is its all-inclusive registration fee. You get all your meals and two nights in a standard room for one price. There is an add-on fee for additional nights if you decide to stick around for the weekend and enjoy wine country.

There are also opportunities to get your name in front of your colleagues through sponsorship, event hosting and exhibiting. Several packages come with multiple conference registrations, so they are a good value if your organization plans on sending more than one representative.

Another thing that has stayed the same about the Utility Energy Forum is that representatives from WAPA's Energy Services will be attending. We look forward every year to meeting our customers in person, and we hope to see you there. ■

# WAPA's Renewable Resources Program co-sponsors workshop on tough solar-program challenges

## June 7-8, 2017
## Golden, Colorado

What is the toughest challenge for an electric cooperative or public power utility in planning for community solar? Many utilities say it is solar resource procurement; for others, the top challenge would be pricing that works for both the utility and the customer, and turning that into a program offer. The Community Solar Value Project (CSVP) and WAPA's Renewable Resources Program have heard these frequently cited concerns, and they are responding with a new, one-and-a-half day workshop, Community Solar Procurements, Programs and Pricing, on June 7-8 at the WAPA Electric Power Training Center in Golden, Colorado. Registration is free and targeted at utilities in the West, whether they are in states like Colorado that have guiding community solar legislation or states in which community solar is an option that requires utility leadership and innovation.

According to Jill Cliburn, program manager for CSVP, this event will be the culmination of a two-and-a-half-year investigation into utilities' best practices and innovations in community solar. Community solar, or community shared solar, describes a range of programs that allow customers to share, usually by a per-kilowatt-hour subscription or by leasing or buying panels, in a relatively large solar project, regardless of their ability to host a typical rooftop solar system. Projects are currently in place in 29 states, with the total market expected to grow by 20 percent or more annually.

This workshop will feature speakers from utility-led community solar programs, such as those at Sacramento Municipal Utility District and Pedernales Electric Cooperative. Thought leaders from CSVP's own expert team, Navigant Consulting, the Regulatory Assistance Project and Rocky Mountain Institute (RMI) will also speak. RMI's successful Shine Project recently demonstrated ways to dramatically lower local solar procurement costs, whether for community solar programs or other utility needs.

"We're also making time for participants to share their own unique challenges and solutions, so everyone will leave the workshop with actionable notes and resources," Cliburn said.

Working with a utility forum group of about 10 utilities in the West, CSVP has put emphasis on practical solutions. For example, the project's approach to pricing begins with streamlined utility-side economic analysis, but takes into account the market-target price required for program success. CSVP also has introduced new ways to package community solar with other utility program offers. And the project has published easy-to-use resource guides and checklists to help keep other tasks, from market research to completing the project RFP and procurement, on track and on budget.

**Jill Cliburn explains how the Community Solar Value Project is working to improve the community-scale solar model. (Photo by Community Solar Value Project)**

*Community Solar Procurements, Programs and Pricing* begins at 3:00 p.m. (MDT) on Wednesday June 7, with a "lightning round" of community solar best-practice presentations and a quick tour of WAPA's grid simulator, followed by a cash-bar networking reception. On Thursday June 8, the workshop convenes from 8 a.m. to 5 p.m., with lunch and breaks included. There is no cost for utility representatives to participate in this workshop, thanks to CSVP sponsorship by the U.S. Department of Energy SunShot Initiative and Solar Market Pathways Program and workshop co-sponsorship from the WAPA Renewable Resources Program and Extensible Energy, LLC, the prime contractor for CSVP. Participants only cover travel and hotel costs and incidentals. For more information, see the registration website or contact workshop coordinator Nicole Enright. ■

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